

## SECTION 01300 - SUBMITTALS

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- F. Review Time: Allow sufficient time so that the installation will not be delayed as a result of the time required to properly **process** submittals, including time required to properly process resubmittal, if necessary. Advise the Design Consultant and Project Management Firm **on** each submittal, as to the progress of the **Work**, and if the **Work** would be expedited if processing time could be shortened.
- 1). Allow two (2) weeks for the Design Consultant's initial processing **of** each submittal. Allow a longer time period where processing **must** be delayed for coordination with subsequent submittals. The Design Consultant will advise the Contractor promptly when it is determined that a submittal being processed must be delayed for coordination.
  - 2). Allow one (1) week for processing each re-submittal, when required.
  - 3). No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Design Consultant and Project Management Firm sufficiently in advance of Work.
- G. Submittal Preparation: **Mark** each submittal with a permanent label **for** identification. Provide the following information and recording of action taken:
- 1). Project name
  - 2). Date.
  - 3). Name and address of Design Consultant.
  - 4). Name and address of Contractor.
  - 5). Name and address **of** supplier.
  - 6). Name of manufacturer.
  - 7). Number and title of appropriate Specification Section.
  - 8). Drawing number and detail **references**, as appropriate
  - 9). Similar definitive information as necessary.
- H. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal **from** the **Contractor** to the Design Consultant and Project Management Firm, and to other destinations as indicated, by use of a transmittal form. Submittal's received **from** source other than the Contractor will be returned to the sender "without action".
- I. Transmittal Form: Prepare a **draft** of a transmittal form and submit it to the Project Management Firm for acceptance. Provide on the form places for the following information:
- 1). Project name

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- 2). Date.
  - 3). To.
  - 4). Name of subcontractor, manufacturer and supplier.
  - 5). References.
  - 6). Category and type of submittal.
  - 7). Submittal purpose and description.
  - 8). Submittal and transmittal distribution record.
  - 9). Signature of transmitter.
  - 10). Contractor's certification stating that the information submitted complies with the requirements of the Contract Documents, with a place for the Contractor's signature.
- J. Record relevant information and requests for data on the transmittal form. **On** the transmittal form, **or** on a separate sheet attached to the form, record deviations from the requirements of the Contract Documents, if any, including minor variations and limitations.

### 1.4 SPECIFIC SUBMITTAL REQUIREMENTS

- A. GENERAL: Specific submittal requirements for individual units of work are specified in the applicable Specification Section. Except as otherwise indicated in the individual Specification Sections, comply with the requirements specified herein for each type of submittal.

Where it is necessary to provide intermediate submittals between the initial and final submittals, provide and process intermediate submittals in the same manner as for initial submittals.

0. SHOP DRAWINGS: Shop drawings shall be newly prepared. Information required on shop drawings includes dimensions, identification on specific products and materials which are included in the Work, compliance with specified standards and notations of coordination requirements with other work. Provide special notation of dimensions that have been established by field measurement. Highlight, encircle **or** otherwise indicate deviations from the Contract Documents on the shop drawings.

1. Coordination Drawings: Provide coordination drawings where required for the integration of the Work, including work first shown in detail on shop drawings or product data. Show sequencing and relationship of separate units of work which must interface in a restricted manner to fit in the space provided, or function as indicated. Coordination drawings are considered shop drawings and must be definitive in nature.

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- a). Refer to Division 15 and Division 16 Sections for additional general requirements applicable to shop drawings for mechanical and electrical work, respectively.
    - b). Do not permit shop drawing copies without appropriate final "Action" marking by the Design Consultant to be ~~used~~ in connection with the ~~Work~~.
  2. Preparation: Submit newly prepared information, drawn to accurate scale on sheets not less than 8-1/2 x 11 inch; except for actual pattern or template type drawings, the maximum sheet size shall not exceed 36 x 48 inch. Indicate the name of the ~~firm~~ that prepared each shop drawing and provide appropriate project identification in the title block. Provide a space not less than twenty (20) square inches beside the title block for marking the record of the review process and Design Consultant's "action" marking.
    - a). Do not introduce Contract Documents or copy standard printed information as a basis of shop drawings.
  3. Initial Submittal: Provide one (1) correctable translucent reproducible print and one (1) blue-line or black-line print; the reproducible print will be returned.
  4. Final Submittal: Provide three (3) prints plus two (2) additional prints where they are required for maintenance manuals. Two (2) prints will be retained; the remainder will be ~~returned~~. One (1) of the prints ~~returned~~ will be marked-up and maintained by the Contractor as a "Record Document".
- C. PRODUCT DATA: General information required specifically as a product data includes manufacturer's standard printed recommendations for application and use, compliance with recognized standards of trade associations and testing agencies, and the application of their labels and seals (if any), special notation of dimensions which have been verified by way of field measurement, and special coordination requirements for interfacing the material, product or system with other work.
- 1). Refer to Division 15 and Division 16 Sections for additional general requirements applicable to product data for mechanical and ~~electrical~~ work respectively.
    - a. Preparation: Collect required project data into a single submittal for each unit of work or system. ~~Mark~~ each copy to show which choices and options are applicable to the Project. Where product data has been printed to include information on several similar products, some of which are not required for use on the Project, or are not included in this submittal, ~~mark~~ the copies to show clearly that such information is not applicable.
      1. Where product data must be specially prepared for required products, materials or systems, because standard printed data is not suitable for use, submit data as "shop drawings" and not as "product data".

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- 2). Submittals: Product data submittal is required for information and record and to determine that the products, materials and systems comply with the provisions of the Contract Documents. Therefore, the initial submittal is also the final submittal, except where the Design Consultant observes that there is non-compliance with the provisions of the Contract Documents and returns the submittal promptly to the Contractor marker with the appropriate "Action".
    - a. Provide a preliminary single-copy submittal where required for selection of options by the Design Consultant or Project Management Firm.
  - 3). Initial Submittal: Except as otherwise indicated in individual sections of these Specifications, submit three (3) copies of each required product data submittal, plus two (2) additional copies where required for maintenance manuals. The Design Consultant will retain one (1) copy, will send one (1) copy to the Project Management Firm, and will return the other marked with "Action" and corrections or modifications as required.
    - a. Do not submit product data or allow its use on the Project, until compliance with the requirements of the Contract Documents has been confirmed by the Contractor.
  - 4). Final Distributions: Furnish copies of product data to subcontractors, suppliers, fabricators, manufacturers, installers, governing authorities and others **as** required for proper performance of the work. Show distribution on transmittal form.
  - 5). Installation Copy: Do not proceed with installation materials, product and systems until a copy of product data applicable to the installation is in the possession of the installer. Do not permit the use of unmarked copies of product data in connection with the performance of the Work.
- D. SAMPLES: Submit samples for the Design Consultant's visual review of general kind, color, pattern and texture, and for final check of the coordination of **these** characteristics with other related elements of the Work. Samples are also submitted for quality control comparison of these characteristics between the final sample submittal and the actual work as it is delivered and installed.
- 1). Refer to individual work Sections of these Specifications for additional sample requirements, which may be intended for examination of testing of additional characteristics. Compliance with other required characteristics is the exclusive responsibility of the Contractor; such compliance is not considered in the Design Consultant's review and "Action" indication on sample submittals.
  - 2). Documentation required specifically for sample submittals includes a generic description of the sample, the sample source or the product name or manufacturer, compliance with governing regulations and recognized standards. In addition, indicate limitations in terms of availability, sizes, delivery time, and similar limiting characteristics.

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- 3). Preparation: Where possible provide samples that are physically identical with the proposed material or product to be incorporated in the Work; provide full scale, fully fabricated samples cured and finished in the **manner** specified. Where variations in color, pattern, or texture are inherent in the material or product represented by the sample, submit multiple units of the sample (not less than 3 units), which show the approximate limits of variations. Where samples are specified for the Design Consultant's selection of color, texture or pattern, submit a full set of available choices for the material or product. Mount, display, or package samples in the **manner** specified to facilitate the review of indicated qualities. Prepare samples to match the Design Consultant's sample where so indicated.
  - a. Refer to individual Sections of ~~these~~ Specifications for samples which, because of their relatively high cost or other special considerations, are intended to be returned to the Contractor for incorporation in the Work. Such samples must be in an undamaged condition at the time of use. On the transmittal ~~form~~ to the Design Consultant, indicate such special requests regarding the disposition of sample submittals.
- 4). Submittal: At the Contractor's option, and depending upon the nature of the anticipated response from the Design Consultant, the initial submittal of samples may be either a preliminary submittal or a final submittal.
- 5). Preliminary Submittal, of a single set of samples is required where requirements indicate the Design Consultant's selection of color, pattern, texture or similar characteristics from a manufacturer's range of standard choices is necessary. Preliminary submittals will be reviewed and returned with the Design Consultant's "Action" marking.
- 6). Final Submittals: Submit ~~three~~ (3) sets of samples in the final submittal, one (1) set will be returned.
- 7). Distribution of Samples: Maintain the final submittal sets of samples, as returned by the Design Consultant, at the project site, available for quality control comparisons throughout the course of performing the work. **In** addition, ~~final~~ submittal sets may be used to obtain final acceptance of work associated with each **set**. Prepare and distribute additional sets of samples to subcontractors, suppliers, fabricators, manufacturers, installers, governing authorities, and others as required for **proper** performance of the Work. Show final distribution on transmittal forms.

### **E. MISCELLANEOUS SUBMITTALS:**

- 1). Inspection and Test Reports: Classify each inspection and test report as being either "shop drawings" or "product data" depending on whether the report is specially prepared for the project, or a standard publication of ~~workmanship~~ control testing at the point of production. Process inspection and test reports accordingly.

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- 2). Warranties: Refer to individual specification sections for specific requirements on warranties, product bonds, workmanship bonds and maintenance agreements. **In** addition to copies desired for the Contractor's use, furnish three (3) executed copies of such warranties, bonds or agreements. Provide two (2) additional copies where required for maintenance manuals.
- 3). Survey Data: Refer to Section "Project Coordination" for specific general requirements on property surveys, field work, damage surveys, field measurements, quantitative records of actual work, damage surveys and similar data required by the surveys and similar data required by the individual sections of these specifications. None of the specified copies will be returned.
- 4). Survey Copies: Furnish three (3) copies of general survey data. Provide ten (10) copies of final property survey.
- 5). Records of Actual Work: Furnish four (4) copies of records of actual work, one (1) of which will be returned for inclusion in the record documents as specified in section "Project Close-Out".
- 6). Standards: Where submittal of a copy of standards is indicated, and except where copies of standards are specified as an integral part of "Product Data" submittal, submit a single copy of standards for the Design Consultant's use. Where workmanship, whether at the project site or elsewhere is governed by a standard, furnish additional copies of the standard to fabricators, installers and others involved in the performance of the work.
- 7). Close-Out Submittals: Refer to Section "Project Close-Out" and to individual Sections of the Specifications for specific submittal requirements of project close-out information, materials, tools, and similar items.
- 8). Record Documents: Furnish a set of original documents as maintained on the project site. Along with original marked-up record drawings provide two (2) photographic copies of marked-up drawings, which, at the Contractor's option, may be reduced to not less than half size.
- 9). Operating and Maintenance Data: Furnish three (3) bound copies of operating data and maintenance manuals.
- 10). Materials and Tools: Refer to individual Sections of the Specifications for required quantities of spare parts, extra and overrun stock, maintenance tools and devices, keys, and similar physical units to be submitted.
- 11). General Distribution: Provide additional distribution of submittals to subcontractors, suppliers, fabricators, installers, governing authorities, and others as necessary **for** the proper performance of the **Work**. Include such additional copies of submittals in the transmittal to the Design Consultant where the submittals are required to receive "Action" marking before final distribution. Record distributions on transmittal forms.

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### 1.5 DESIGN CONSULTANT'S ACTION

- A. General: Except for submittals for the record and similar purposes, where action and return on submittals is required or requested, the Design Consultant will review each submittal, mark with appropriate "Action," and where possible return within two (2) weeks of receipt. Where submittal must be held for coordination, the Design Consultant will so advise the Contractor without delay.
- B. Action Stamp: The Design Consultant will stamp each **submittal** to be returned with a uniform, self explanatory stamp, appropriately marked and executed **to** indicate whether the submittal returned is for **unrestricted** use, **final-but-restricted** use (**as marked**), must be revised and resubmitted (use not permitted) or without action (as explained on the transmittal form).

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

**END OF SECTION 01300**

## SECTION 01310 - SCHEDULES AND REPORTS

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### PART 1 - GENERAL

#### 1.01 GENERAL REQUIREMENTS

- A. The Work under this Contract will be planned, scheduled, executed and reported pursuant to the provisions of the General Conditions, and the Specified Completion Dates in the Supplementary Conditions.
- B. The services provided by the Project Management Firm as the Authority's agent, the existence of schedules, networks, Gantt chart or any other charts or services prepared or performed by the Project Management Firm, shall in no way relieve the Contractor of the responsibility of complying with all **of** the requirements of the Contract Documents, including, but not limited to, the responsibility of completing the Work within the Contract Time and the responsibility of planning, scheduling, and coordinating the Work. The Contractor is required to comply with all control procedures specified herein and with any reasonable changes that may be necessary, in the opinion of the Project Management Firm, during the Contract duration.
- C. All milestones or Specific Completion Dates listed in these specifications, **or** elsewhere in the Contract Documents, represent only the major items **of** construction/erection work **or** interface dates. The Completion Dates are considered essential to the satisfactory performance of this Contract and to the coordination of **all** work on the project.
- The Specific Completion Dates listed represent the latest allowable completion dates. Earlier completion dates may be established as agreed by the Contractor and the Project Management Firm.
- D. Should the Contractor plan to complete the Work earlier ~~than~~ any required Milestone or Completion date, the Authority or the Project Management Firm shall not be liable to the Contractor for any costs **or** other damages if the Contractor is unable to complete the Work before such Milestone or Completion date.
- E. The Contractor shall provide all information and input required **for** development of the schedule for the work according to the requirements **of** this Section. The purpose of the project schedule shall be to:
1. *Assure* adequate planning, scheduling and reporting during execution **of** the contract;
  2. Assure coordination of the work of the Contractor and the various subcontractors and suppliers;
  3. Assist the Contractor, Project Management Firm and Authority in monitoring the progress of the work and evaluating proposed changes to the Contract and the project schedule;
  4. Assist the Contractor, Project Management Firm, Design Consultant and Authority in the preparation and evaluation of the Contractor's monthly progress ~~payments~~;
- F. The Contractor shall involve all applicable Subcontractors in the schedule development, updating, and revisions, as required.



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### 1.02 BREACH

- A. Failure of the Contractor to comply with the requirements of this Section shall constitute reason that the Contractor is failing to prosecute the Work with such diligence as will insure its completion within the Contract items shall be considered a breach of the contract.

## PART 2 - SPECIFIC REQUIREMENTS - PROJECTS WITH CONSTRUCTION VALUE LESS THAN \$3,000,000

### 2.01 GENERAL REQUIREMENTS

- A. The Work under this Contract will be planned, scheduled, executed and reported using a bar chart schedule as described below, unless otherwise noted in the Supplementary Conditions.

### 2.02 POST AWARD ACTIVITIES

#### A. Schedule Requirements

1. Within twenty (20) calendar days of the Notice to Proceed, the Contractor shall submit to the Project Management Firm for review and comment, a Bar Chart Schedule for the construction/erection work scope. A copy of this schedule shall be submitted to the Design Consultant. The Schedule shall provide a complete and detailed sequence of operations of the Work within the time limits specified in the Contract.
  - a. The Bar Chart Schedule diagram shall include:
    1. The order of the Contractor's activities including dates for start and completion.
    2. Conformance with and identification of the Specific Dates specified in the Contract Documents.
    3. The description of work by activity.
    4. Off site activities: The Contractor shall include in the Schedule all procurement activities which lead to the delivery of long-lead (long lead items defined as those requiring more than one month between ordering and delivery to the site) materials to the site. The Schedule for Off-Site Activities shall include the following:
      - a. Dates for submittals, ordering, manufacturing or fabricating, and delivery of equipment and materials;
      - b. All significant Contractor activities during the fabrication and erection/installation in a Contractor's plant or on a job site, including materials/equipment purchasing, and delivery;

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- c. Contractor's drawings and submittals to be prepared and submitted to the Design Consultant.

The Contractor shall be solely responsible for expediting the delivery of all material to be furnished by him so that construction progress is maintained according to the current Schedule for the Work.

Submittals, equipment orders and similar items are to be treated as Schedule activities, and shall be given appropriate activity numbers.

1. Delivery of Authority-furnished material and equipment.
  2. Shop fabrication and delivery.
  3. Testing of equipment and materials.
- b. The identity and duration of activities comprising the Bar Chart Schedule **shall** meet the following criteria:
    4. Activity boundaries shall be easily measurable and descriptions shall be clear and concise. Do not preface activity descriptions with "Begin" or "Complete." The beginning and end of each activity shall be readily verifiable, and progress should be quantifiable.
    5. Responsibility for each activity shall be identified with a single performing organization.
    6. The cost component **for** each activity shall be provided. The sum of the activity cost components **shall equal** the contract price. No **costs**, however, shall be assigned to manufacture or delivery activities. This list will be the Schedule of Values for use in making progress payments.
    7. Potential problems or constraints related to the implementation of the construction plan shall be identified in writing.
    8. Seasonal weather conditions, utility coordination, **no-work** periods, expected **job** learning curves, and other **foreseeable** delays to activities shall be considered and included in the planning and scheduling of all work
2. The level of detail of the Bar Chart Schedule shall be such that activity durations over twenty-one (21) working days shall be kept to a minimum except for non-construction activities such **as** shop drawing and sample submittals, fabrication and delivery of materials and equipment, delivery of equipment, concrete curing, and General Conditions activities, or with the approval of the **Project** Management Firm.

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3. The Bar Chart Schedule shall show a completion date for the project that is not later than the **project's** required completion date. All activity durations shall be given in calendar days. The Bar Chart Schedule also shall show the following for each activity:
  - a. **Work** of outside contractors, e.g., utilities, power, and with any separate contractor.
  - b. Description.
  - c. Estimated duration.
  - d. Planned start (by calendar date).
  - e. Planned finish (by calendar date).
  - f. Actual start date (by calendar date).
  - g. Actual finish date (by calendar date).
  - h. Activity codes (s).
  - i. The dollar value of each activity (Schedule of Values).
  - j. The responsibility code for the Contractor **or** Subcontractor performing each activity or portion of the activity.
  - k. The **percentage** complete of each activity in progress **or** completed.
4. The schedule shall be prepared with notations to show how **sequence** of work is affected by requirements for phased completion, work by Authority, pre-purchased materials, coordination with existing work, limitations of continued occupancies, site restrictions, provisions for **future** work, seasonal variations, environment control, and similar provisions **of** total project.
5. It is **to be** expressly understood and agreed by the Contractor that the Schedule is an estimate to be revised **from** time to time **as progress proceeds**, and that the Authority does not guarantee that the Contractor can start **work** activities on the start dates or complete work activities on the finish date shown in the initial Schedule, or in an updated or **revised** Schedule; nor **does** the Authority or Project Management Firm guarantee that Contractor can always proceed in the **sequence** established by said Schedule. If Contractor's Schedule shows that the Authority or a separate contractor is to complete an activity **by** a specific date, or within **a** certain duration, Authority **or** any separate contractor under contract with Authority shall not be bound to said date **or** duration **unless** Authority expressly and specifically agrees in writing to **same**; the Authority's, the Project Management Firm's and/or **the** Design Consultant's review and approval or acceptance of the Schedule does not constitute **an agreement** to specific data, durations, or sequences for activities of the Authority or any separate contractor.

### B. Approval Process

1. The Project Management Firm will review the Contractor's Schedule. The Contractor **is** encouraged to comply with all of the submission **requirements of** the scheduling specification **as** set forth in the Section above entitled "Submittals." **If** the Contractor submits a reasonably complete package that complies with the requirements, the Project Management Firm shall have seven (7) calendar days to review and comment in writing.

9. The Contractor shall revise and resubmit the Schedule ~~as soon as practical~~ but in all cases within fourteen **(14)** calendar days. The Project Management Firm will have five **(5)** calendar days to review and comment on the revised Schedule.
10. If approved, the Schedule will become the official Project Schedule and will be used to monitor progress of the Work, subject to such revisions made to the Schedule as provided for herein or in the Contract Documents, and to support requests for payment.
11. Acceptance by the Authority/Authority's representative of the Contractor's Schedule shall not relieve the Contractor of the responsibility for accomplishing the Work within every Contract-required Milestone and Completion date. The Authority and Authority's representative disclaims any obligation or liability due to acceptance of the Schedule.

#### 2.03 SCHEDULE UPDATES

- A. The Contractor understands and ~~agrees~~ that their schedule is intended to accurately reflect at all times the status of the Project construction. The Contractor also understands and agrees that updating the schedule is a key component of this requirement and will make every reasonable effort to provide current information.
- B. Separate update meetings will be held to report schedule progress and to review the Contractor's Application for Progress Payment. The Contractor understands and agrees that updating the schedule is independent from updating the cost for progress payment purposes.
- C. The Project Management Firm and the Authority will not be obligated to review or to process any Application for Progress Payment until the Contractor has submitted a Progress Report and the percentages of completion are agreed to by the Project Management Firm, Design Consultant and the Contractor.
- D. Throughout the progress of the Work, ~~the~~ Contractor shall prepare and maintain a three-week manual bar chart field schedule reflecting the schedule of work activities accomplished ~~for~~ the previous week and the work scheduled for the forthcoming two weeks. This manual field schedule shall be updated weekly.
- E. Specific dates for updates shall be agreed and established by the Project Management ~~Firm~~, Design Consultant and Contractor, but shall be, at a minimum, monthly. These updates shall be coordinated with the Contractor's Application for Payment date.

#### 2.04 PROGRESS PAYMENTS

- A. Application for Payments shall be based on the approved Schedule of Values. The submission and approval of progress updates calculating the value of work done for any given pay period for each activity based on the percentage complete for that activity less the amount previously paid for past percentages complete and percent of retainage shall be an element of the evaluation of Progress Payments pursuant to the provisions of the General Conditions.

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- B. No payment for work will be approved until the Contractor has complied with the provisions of this Section.
- C. An initial Application for Payment for ~~expenditures~~ not directly related to **Work** accomplished at the project will be allowed before the acceptance **of** the Contractor's schedule. ~~This payment~~ Will be limited to such items as **Permits, Bonds, Mobilization, and Insurance**. Requests for payment **for** work items not included above maybe denied without an approved schedule.

### 2.05 CONTRACTOR'S ORGANIZATION

- A. The Contractor shall maintain, **as part of** its organization, a staff of sufficient size knowledgeable in preparing input information for the Schedule, monitoring progress, updating and revising ~~diagrams~~ when necessary.

### 2.06 RECOVERY SCHEDULE

- A. Should any of the conditions exist, such that **certain** activities shown on the Contractor's Schedule fall behind schedule to the extent that any of the specific Dates **are** in jeopardy, the Contractor shall be required, at no extra cost to the Authority, ~~to prepare~~ and submit to the Project Management ~~Firm~~ a supplementary Recovery Schedule, in a form and detail appropriate to the **need**, to explain and display how he intends to reschedule those activities to regain compliance with the Initial Schedule during the immediate subsequent pay period. The preparation **of** a recovery schedule shall not be grounds for a Change **Order** or a Time Extension.
- B. The Contractor **shall** do the following, ~~after~~ determination **of** the requirement for a Recovery Schedule:
  - 12. Within *three* (3) calendar ~~days~~, the Contractor shall submit a Recovery Schedule for acceptance to the Project Management Firm. The Recovery Schedule shall be prepared to similar level of detail as the Project Schedule.
  - 13. Any revisions **necessary** because of this review **shall** be resubmitted by the Contractor for acceptance within ~~two~~ **(2)** calendar days **of** the ~~conference~~. The approved Recovery Schedule shall then be the Schedule that the Contractor shall use in planning, organizing, directing, coordinating, performing and executing the Work (including **all** activities of subcontractors, equipment vendors and suppliers) **for** duration of the recovery schedule, to regain compliance **with** the Project Schedule.

### 2.07 SCHEDULE REVISIONS

- A. The Contractor understands and agrees that their schedule **is** intended to accurately reflect at all times the status of the Project construction. The Contractor also understands and agrees that changes or revisions to the schedule **are** key components **of** this requirement and will make every reasonable effort so that the schedule accurately **reflects** current conditions.

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- B. Should the Contractor, after approval of the initial CPM Schedule want to change the plan of construction, he shall submit the requested revisions to the Project Management Firm including a description of the logic for rescheduling the work, methods of maintaining adherence to intermediate milestones and specific dates and the **reasons** for the revisions. The Project Management Firm will have five **(5) working days** to review and either approve the change or reject the change in writing to the Contractor. If the requested changes are approved by the Project Management Firm they will **be** incorporated by the Contractor into the Schedule in the next reporting **period**.
- C. The Contractor shall revise the schedule to include the effect of changes, acts **of** God or other conditions or events that have affected the Schedule. The Project Management Firm will have five **(5) working days** to review and either approve the change or reject the change in writing to the Contractor. If the requested changes are approved by the Project Management Firm they will **be** incorporated by the Contractor into the Schedule in the next reporting period.
- D. When the Authority orders changes by Change Order that have the potential to impact the Contract Milestones or Specific Dates stipulated, a Network showing the impact will be prepared by the Contractor and provided to the Project Management Firm. **After** the Authority accepts the Network, it will be incorporated into the Schedule **by** the Project Management Firm.
- E. If at any time during the construction, it appears to the Project Management Firm that the Contractor's schedule no longer represents the actual prosecution and progress of the work, the Project Management Firm will request in writing **a** revision to the schedule. Any "out of sequence progress" **problems** will **be** considered evidence that the schedule **needs** revising. The Contractor then has three **(3) working days** to respond to that written request. In the event the contractor does not **agree** with the conclusion of the Project Management Firm regarding the schedule status of the project, it shall **be** resolved in accordance with the disputes clause of the contract.
- F. Failure to furnish any required submittal or information specified herein shall constitute a cause for withholding any part of progress payments pursuant to the General Conditions.

### **2.09 COORDINATION**

- A. The Contractor **shall** coordinate the work with that of the other contractors and shall cooperate fully with the Project Management Firm in maintaining orderly progress toward completion of the **Work** as scheduled.
- B. Failure of Authority-furnished equipment and materials to arrive as scheduled, or failure of other construction contracts to meet their schedule, shall not be justification for an extension of time, except where such failure causes, in the opinion **of** the Project Management Firm, an unreasonable delay in the Contractor's work, in which case the provisions of the General Conditions regarding extensions of time and extra work shall apply.
- C. The Contractor shall involve all applicable Subcontractors in the schedule development, updating, and revisions, as required.

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### **PART 3 - SPECIFIC REQUIREMENTS - PROJECTS WITH CONSTRUCTION VALUE GREATER THAN OR EQUAL TO \$3,000,000**

#### **3.01 GENERAL REQUIREMENTS**

- A** The Work under this Contract will be planned, scheduled, executed and reported using the Critical Path Method (after this called CPM).

#### **3.02 POST AWARD ACTIVITIES**

**A.** Network Requirements

1. Within twenty (20) calendar ~~days~~ of the Notice to Proceed, the Contractor shall submit to the Project Management ~~Firm~~ for review and comment, a CPM Schedule in precedence form for the construction/~~erection~~ work ~~scope~~. A copy of this schedule shall be submitted to the Design Consultant. The CPM Schedule shall provide a complete and detailed sequence of ~~operations~~ of the Work within the time limits specified in the Contract.

a. The CPM Schedule diagram shall include:

1. The order and interdependencies of the Contractor's activities and the major points of the interface or interrelation with the activities of others, including Specific Dates for completion. The following criteria shall form the basis for assembly of the logic:
  - a. What activity must be completed before a subsequent activity can be started?
  - b. What activities can be done concurrently? This includes activities with Start-To-Start and Finish-To-Finish relationships with or without leads and lags.
  - c. What activity must be started immediately following a completed activity?
2. Activities should be linked between major area separations of the project so that the individual areas do not imply complete independence. The critical path should run through all major areas, since the entire project must be completed.
3. Conformance with and identification of the Specific Dates specified in the Contract Documents.
4. The description of work by activity.

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5. Off site activities: The Contractor shall include in the CPM Schedule all procurement activities which lead to the delivery of materials to the site. Upon written approval from the Project Management Firm, these activities may be submitted as a separate Off-Site Activities Schedule, properly correlated to the CPM Schedule. The Schedule of Off-Site Activities shall include the following:

- a. Dates for submittals, ordering, manufacturing or fabricating, and delivery of equipment and materials. Long lead items requiring more than one month between ordering and delivery to the site shall be clearly noted,
- b. All significant Contractor activities during the fabrication and erection/installation in a Contractor's plant or on a job site, including materials/equipment purchasing, and delivery;
- c. Contractor's drawings and submittals to be prepared and submitted to the Design Consultant.

The Contractor shall be solely responsible for expediting the delivery of all material to be furnished by him so that construction progress is maintained according to the current Schedule for the Work.

Submittals, equipment orders and similar items **are** to be treated as Schedule activities, and shall be given appropriate activity numbers.

6. Required delivery dates of Authority-furnished material and equipment.
7. Shop fabrication and delivery.
8. Critical Path (or Paths).
9. Testing of equipment and materials.

- b. The identity, duration and logic of activities comprising the CPM Schedule shall meet the following criteria:

1. Activity boundaries shall be easily measurable and descriptions shall be clear and concise. Do not preface activity descriptions with "Begin" or "Complete." The beginning and end of each activity shall be readily verifiable, and progress should be quantifiable.
2. Responsibility for each activity shall be identified with a single performing organization.



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3. The cost component for each activity shall be provided. The sum of the activity cost components shall equal the contract price. No costs, however, shall be assigned to ~~manufacture~~ or delivery activities. This list of costs shall be referred to as the Schedule of Values for use in progress payments.
  4. Potential problems or ~~constraints~~ related to the implementation of the construction plan shall be identified in writing.
  5. Seasonal weather conditions, utility coordination, ~~no-work~~ periods, expected job learning curves, and other foreseeable delays to activities shall be considered and included in the planning and scheduling of all work.
  6. Maximize ~~Start-To-Start~~ and Finish-To-Finish activity relationships. Overlapping activities minimizes out-of-sequence problems that arise when most relationships are Finish-To-Start with zero lead or lag.
  7. Imposed completion dates for events other than the Specified Completion Dates will not be ~~permitted~~.
2. The level of detail of the CPM Schedule shall be such that activity durations over twenty-one (21) calendar days shall be kept to a minimum except for non-construction activities such as shop drawing and sample submittals, fabrication and delivery of materials and equipment, delivery of equipment, concrete curing, and General Conditions activities, or with the approval of the ~~Project~~ Management Firm.
  3. The CPM Schedule shall show an early completion date for the project that is not later ~~than~~ the project's required completion date. All activity durations shall be given in working days. The CPM Schedule also shall show the following for each activity:
    - a. Interfaces with the work of outside contractors, e.g., utilities, power, and with any separate contractor.
    - b. Description.
    - c. Estimated duration.
    - d. Early ~~start~~ (by calendar date).
    - e. Late start (by calendar ~~date~~).
    - f. Early finish (by calendar date).
    - g. Late finish date (by calendar date).
    - h. Total float available in work days.

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- i. Actual start date (by calendar date).
  - j. Actual finish date (by calendar date).
  - k. Activity codes (s).
  - l. The Critical Path for the project, with said path of activities being clearly and easily recognizable on the time-scaled CPM Schedule Diagram. The relationship between all non-critical activities and activities on the Critical Path shall be clearly shown on the CPM Schedule Diagram.
  - m. The dollar value of each activity (Schedule of Values).
  - n. The responsibility code for the Contractor or Subcontractor performing each activity **or** portion of the activity.
  - o. The percentage complete of each activity in progress or completed whether manually input or computer calculated.
4. It is to be expressly understood and agreed by the Contractor that the Schedule **is** an estimate to be revised from time to time as progress proceeds, and that the Authority **does** not guarantee that the Contractor can start **work** activities on the "early start" or "late start" dates **or** complete **work** activities on the "early finish" or "late finish" date shown in the initial Schedule, or in an updated or revised Schedule; **nor** does the Authority or Project Management Firm guarantee that Contractor can always **proceed** in the sequence established by said Schedule. **If** Contractor's Schedule shows that the Authority **or** a separate contractor is to complete an activity by a specific date, **or** within a certain duration, Authority **or** any separate contractor under contract with Authority shall not be bound to said date or duration unless Authority expressly and specifically agrees in writing to same; the Authority's, the Project Management Firm's and/or the Design Consultant's review and approval or acceptance of the Schedule does not constitute an agreement to specific dates, durations, **or** sequences **for** activities of the Authority or any separate contractor.

### E. Required Submittals

- 1. The submittal of the contract scheduling documents shall include:
  - a. A plotter-generated time-scaled network diagram showing activity descriptions, durations and relationships between activities. The critical path should be easily identifiable.
  - b. The following reports: 1) three (3) sorts of the standard CPM report, including, as a minimum, activity **numbers**, descriptions, early and late start and finish dates, and total float; the report shall be sorted by Activity Number, Early Start, and Total Float; 2) predecessor/successor report, showing the above information plus the predecessors and successors **for** each activity.

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- c. A computer disk (3-1/2") containing the schedule data **file**. The Contractor shall develop the schedule **using** the Primavera scheduling system or an equivalent system. The Primavera system is **preferred**. The Project Management Firm **has** the right to accept or reject requests by the Contractor to use a scheduling system other than Primavera.

C. Approval Process

1. The Project Management Firm will review the Contractor's Schedule, including logic diagrams and computer-generated analysis. The Contractor shall comply with all of the submission requirements of the **scheduling** specification as set forth in the Section above **entitled "Submittals."** If the Contractor submits a complete package that complies with the requirements, the Project Management Firm shall have seven (7) calendar days to review and comment **in writing**.
2. The Contractor shall revise and **resubmit** the Schedule **as** soon as practical but in all cases within fourteen **(14)** calendar days. The Project Management Firm will have five (5) calendar **days** to review and comment on the revised Schedule.
3. Within seven (7) calendar days following acceptance of the Schedule, the Contractor shall provide one (1) copies **of the** CPM Schedule with Computer Reports to the Project Management Firm **for** final review and acceptance. The Project Management Firm will have the final review and acceptance within three **(3) working** days.
4. **Upon** approval, the Schedule will **become** the official Project Schedule and will be used to monitor progress of the **Work**, subject to such revisions made to the Schedule as provided **for** herein or in the Contract Documents, and to support requests **for** payment.
5. **If** the Contractor thereafter wishes to make changes in its **method of** operating and scheduling, he shall **follow** the procedures set out in Paragraph **3.08**, Network Revisions, **of this** Section.
6. Acceptance by the Authority/Authority's Representative of the Contractor's CPM Schedule shall not relieve **the** Contractor **of** the responsibility **for** accomplishing **the** Work within every Contract-required Milestone and Completion date. The Authority and Authority's Representative disclaims any obligation or liability due to acceptance **of** the CPM Schedule.
7. If the Contractor fails to provide the schedules **within the time prescribed**, or revisions to the schedule within the requested time, the Authority may withhold approval of payment until the Contractor **submits** the required information.

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### 3.03 COMPUTER COST AND SCHEDULE REPORTS

- A. Every month the Contractor will generate Computer Cost and Schedule Reports from the CPM Schedule Network, based on the progress of the work. These computer reports will reflect the progress of the project with respect to both cost and time. The Contractor will generate these reports for the information and use of the Authority in reviewing and monitoring progress.

### 3.04 SCHEDULE UPDATES

- A. The Contractor understands and agrees that their schedule is intended to accurately reflect at all times the status of the Project construction. The Contractor also understands and agrees that updating the schedule is a key component of this requirement and will make every reasonable effort to provide current information.
- B. Separate update meetings will be held to report schedule progress and to review the Contractor's Application for Progress Payment. The Application for Progress Payment is produced by the Contractor based on the Schedule of Values of the cost-loaded CPM. In each case, the previous month's CPM reports will be used to record progress. The Contractor understands and agrees that updating the schedule is independent from updating the cost for progress payment purposes.
- C. The progress report submitted by the Contractor will indicate, as a minimum, those activities, or portions of activities, which were completed during the reporting period, the actual start and finish dates for those activities, remaining duration and/or estimated completion dates for activities currently in progress.
- D. The Project Management Firm and the Authority will not be obligated to review or to proms any Application for Progress Payment until the Contractor has submitted a Progress Report and the percentages of completion are agreed to by the Project Management Firm, Design Consultant and the Contractor.
- E. Throughout the progress of the Work, the Contractor shall prepare and maintain a *three* week manual bar chart field schedule reflecting the schedule of work activities accomplished for the previous ~~week~~ and the work scheduled for the forthcoming two weeks. This manual field schedule shall be updated weekly.
- F. When updating the computerized schedule, the Contractor must use the option that retains the logic. Primavera calls this option "Retained Logic." Any option that overrides the logic and allows activities that have started out-of-sequenceto float to the project end date is not permitted. Since other scheduling systems may have different features for handling out-of-sequence activities, the Project Management Finn will evaluate the options and notify the Contractor in writing which option is acceptable.
- G. Specific dates for schedule updates shall be agreed and established by the Project Management Firm, Design Consultant and Authority, but shall be, at a minimum, monthly.

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### **3.05 PROGRESS PAYMENTS**

- A. Application for Payments shall be based on the approved Schedule of Values. The submission and approval of ~~progress~~ updates calculating the value of work done for any given pay ~~period~~ for each activity based on the percentage complete for that activity less the amount previously paid for past percentages complete and percent of retainage shall be an element of the evaluation of **Progress** Payments pursuant to the provisions of the General Conditions.
- B. No payment for **work** will be approved until the Contractor has ~~complied~~ with the provisions of this Section.
- C. **An** initial Application for Payment for ~~expenditures~~ not directly related to Work accomplished at the project will be allowed ~~before the~~ acceptance of the Contractor's schedule. **This** payment will be limited to such items as **Permits**, Bonds, Mobilization, and Insurance. Requests for payment for work items not included above may be denied without an approved schedule.

### **3.06 CONTRACTOR'S ORGANIZATION**

- A. The Contractor shall maintain, ~~as~~ part of its organization, ~~a~~ staff of sufficient size knowledgeable in the use and application of CPM. **The** Contractor's staff will be responsible for preparing the CPM Schedule, monitoring **props**, updating **and** revising logic diagrams when necessary.

### **3.07 RECOVERY SCHEDULE**

- A. Should any of the conditions exist, such that certain activities ~~shown~~ on the Contractor's CPM Schedule fall behind schedule to the extent that any of the **Specific** Dates are in jeopardy, the Contractor shall be required, at no extra cost to the Authority, to prepare and submit to the Project Management Firm, in addition to the Project Schedule, a supplementary Recovery Schedule, in a form and detail appropriate to the ~~need~~, to explain and display how he intends to reschedule those activities to regain compliance with the CPM Schedule during the immediate ~~subsequent pay period~~. **The** preparation of a recovery schedule shall not be grounds for a Change **Order** or a Time Extension.
- B. **The** Contractor shall do the following, after determination ~~of~~ the requirement for a Recovery Schedule:
  - I. Within three (3) calendar days, the Contractor shall submit a Recovery Schedule for acceptance to the Project Management Firm. **The** Recovery Schedule shall be prepared to similar level of detail **as** the CPM Schedule and shall have a maximum duration of one (1) month.

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2. Any revisions necessary because of this review shall be resubmitted by the Contractor for acceptance within two (2) calendar days of the conference. The approved Recovery Schedule **shall** then be the Schedule that the Contractor shall use in planning, organizing, directing, coordinating, performing and executing the Work (including all activities of subcontractors, equipment vendors and suppliers) for its one (1) month duration, to regain compliance with the CPM Schedule.

### 3.08 NETWORK REVISIONS

- A. The Contractor understands and agrees that their schedule is intended to accurately reflect at all times the status of the Project construction. The Contractor also understands and agrees that changes or revisions to the schedule are key components of this requirement and will make every reasonable effort to provide information as quickly **as** possible so that the CPM schedule accurately reflects current conditions.
- B. Should the Contractor, after approval of the initial CPM Schedule want to change the plan of construction, he shall submit the requested revisions to the Project Management Firm including a description of the logic for rescheduling the **work**, methods of maintaining adherence to intermediate milestones and specific dates and the reasons for the revisions. The Project Management Firm will have five (5) working days to review and either approve the change **or** reject the change in writing to the contractor. If the requested changes are approved by the Project Management Firm they will be incorporated by the Contractor into the CPM Schedule in the next reporting period.
- C. The Contractor shall revise the schedule to include the effect of changes, acts of God **or** other conditions or events that have affected the CPM Schedule. The Project Management Firm will have **seven** (7) calendar days to **review** and either approve the change or reject the change in writing to the Contractor. If the requested changes are approved by the Project Management Firm they will be incorporated by the Contractor into the CPM Schedule in the next reporting period.
- D. When the Authority orders changes by Change Order that have the potential to impact the Contract Milestones **or** Specific Dates stipulated, a Network will be prepared by the Contractor and provided to the Project Management Firm. After the Authority accepts the Network, it will be incorporated into the CPM Schedule by the Project Management Firm.
- E. Neither the updating or revision of Contractor's Detailed Project Schedule nor the submission, updating, change or revision of any report or schedule for Authority's review or non-objection of any such report **or** schedule shall have the effect **of** amending or modifying, in any way, the Contract Time, any Contract Completion Date, or Contract Milestone Dates or of modifying or limiting in any way Contractor's obligations under this Contract.

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- F. If at any ~~time~~ during the construction, it appears to the Project Management Firm that the Contractor's schedule no longer ~~represents~~ the actual prosecution and progress of the work, the Project Management Firm will request in Writing a revision to the schedule. Any "out of sequence progress" problems will be considered evidence that the schedule needs revising. The Contractor ~~then~~ has **three (3)** working days to respond to that written request. In the event the contractor ~~does~~ **not** agree with the conclusion of ~~the~~ Project Management Firm regarding the schedule status of the project, it **shall** be resolved in accordance with the disputes clause of the contract.
- G. Failure to furnish any required submittal or ~~information~~ specified herein shall constitute a cause for withholding any part of progress ~~payments~~ pursuant to the General Conditions.

### 3.09 COORDINATION

- A. The Contractor shall coordinate the work with that **of** the other contractors and shall cooperate **fully** with the Project Management Firm in maintaining orderly progress toward completion **of** the **Work** as scheduled.
- B. Failure of Authority-furnished equipment and materials to arrive as scheduled, or failure of other construction contracts to meet their schedule, shall not be justification for an extension of time, except where such failure causes, in the opinion of the Project Management Firm, an **unreasonable** delay in the Contractor's work, in which case the provisions of the General Conditions regarding extensions of time shall apply.
- C. The Contractor shall keep himself/herself, and subcontractors, advised always while the **Work** is progressing regarding delivery status of Authority-furnished equipment and material and of the progress of construction work being ~~performed~~ under separate contracts.
- D. The Contractor shall involve all applicable Subcontractors **in** the schedule development, updating, and revisions, if **required**.

**END OF SECTION 01310**

## **SECTION 01380 - PHOTOGRAPHS**

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### **PART 1 - GENERAL**

#### **1.1 Related Documents**

- A. Drawings and General Provisions of Contract, including but **not** limited to, General and Supplementary Conditions and other Division 1 Specification Sections, apply to **Work** of this Section.

#### **1.2 Summary**

- A. **As** evidence of existing conditions, work progress, and Substantial Completion, the Contractor shall furnish the Authority, through the Project Management Firm, photographs **of the Work** in the quantities set forth in Section 01010. Each photograph shall be noted with the date and time the picture was taken, the name of the project, description of photograph and directional identification, e.g., "looking north". The photographs shall be taken from locations approved **by** the Project Management Firm.

### **PART 2 -PRODUCTS (Not Applicable)**

### **PART 3: EXECUTION (Not Applicable)**

**END OF SECTION 01380**



## **SECTION 01410 - TESTING LABORATORY SERVICES**

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### **PART 1 - GENERAL**

#### **1.1 REQUIREMENTS INCLUDED**

- A. Authority will employ and pay for the service of an Independent Testing Laboratory to perform specified testing and services.
- B. Employment of Testing Laboratory shall in **no** way relieve Contractor of his obligation to perform Work in accordance with Contract Documents.
- C. Contractor shall cooperate with the Laboratory to facilitate the execution of its required services.
- D. Contractor will pay for additional samples and tests required for Contractor's convenience or when initial tests indicate work does not comply with Contract Documents.
- E. Where terms "Inspector" and Testing Laboratory" are **used**, they mean and refer respectively to an officially designated and accredited **Inspector** of the Testing Laboratory and the Testing Laboratory employed by the Authority.

#### **1.2 RELATED WORK**

- A. Drawings and General Provisions of Contract, including but not limited to, General and Supplementary Conditions and Division - 1 Specification Sections, apply to work of this Section.
- B. Inspections and testing required by laws, ordinances, rules, regulations, orders or approvals of public authorities.
- C. Refer to Division **15** and Division 16 for testing in conjunction with MEP work.

#### **1.3 QUALIFICATION OF LABORATORY**

- A. Shall meet "Recommended Requirements for Independent Laboratory Qualification" published by American Council of Laboratories.
- B. Shall meet basic requirements of ASTM E 329, "Standards of Recommended Practices for Inspection and Testing Agencies for Concrete and Steel **as** Used in Construction.
- C. Authorized to operate in the state of New Jersey.
- D. Testing equipment shall be calibrated at reasonable intervals by devices of accuracy traceable to either:
  - 1). National **Bureau** of Standards
  - 2). Accepted value of natural physical conditions.

**1.4 LABORATORY DUTIES AND RESPONSIBILITIES**

- A. Cooperate with Design Consultant, Project Management Firm and Contractor; provide qualified personnel after due notice.
- B. Perform specified inspections, sampling and testing of materials and methods of construction.
- C. Comply with Specifications
- D. Ascertain compliance ~~of~~ materials with requirements of Contract Documents.
- E. Furnish Design Consultant and Project Management Firm with written evaluation of proposed concrete design mixes, and other material sizes, submitted by Contractor for evaluation.
- F. Notify Project Management Firm and Contractor immediately of observed work or materials which fail to meet the requirements of Contract Documents.
- G. Promptly submit written report of each test and inspection; distribution will be at a minimum to Design Consultant, Project Management Firm, and Contractor and ~~as~~ designated by Project Management Firm. Each report shall include:
  - 1). Date issued.
  - 2). Project title and number.
  - 3). Testing Laboratory.
  - 4). Name and signature of Laboratory inspector.
  - 5). Date and time of sampling or inspection.
  - 6). Record of temperature and weather conditions.
  - 7). Date of tests.
  - 8). Identification of products and Specification Section.
  - 9). Location of sample of test in the Project.
  - 10). Type of inspection.
  - 11). Results of tests and compliance with Contract Documents.
  - 12). Interpretation of test reports, when requested by Project Management Firm.

Perform additional tests as required by Project Management Firm or Authority.

**1.5 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY**

- A. Laboratory is not authorized to:
  - 1). Release, revoke, alter or enlarge on requirements of Contract Documents.
  - 2). Approve or accept any portion of the Work.
  - 3). Perform any duties of the Contractor.
- B. Work will be checked as it progresses, but failure to detect any defective work ~~or~~ materials shall not, in any way, prevent later rejection when such defect is discovered.